

Please add the following new Claim 24.

24. (New) The antenna device (10) according to claim 1, wherein the flexible housing (42) is made of rubber or plastic.

REMARKS

The Examiner is thanked for the telephone interview granted Applicants' representative on November 19, 2002, during which the outstanding Final Rejection and various options for responding thereto were discussed.

Claims 1, 2 and 4-24 are now present in the case. Claims 20-23 are allowed, and claims 13-15 and 16/13-16/15 are indicated as containing allowable subject matter. Claims 1, 2, 4-12, 16/11, 16/12 and 17-19 are rejected under 35 U.S.C. 102 (e) as anticipated by Johnson et al. (U.S. Patent No.6,239,765).

By the present Amendment, independent claims 1 and 11 have been amended, and new dependent claim 24 has been added. Applicants have carefully considered the cited references and the Examiner's comments, and believe the claims currently in the case patentably distinguish over Johnson et al. and are allowable in their present form. Reconsideration of the rejection is, accordingly, respectfully requested in view of the above amendments and the following comments.

Independent claim 1 has been amended to clarify important differences between the present invention and the antenna apparatus in Johnson et al. Initially, claim 1 has been amended to emphasize

that the present invention relates to an external antenna device for a portable telecommunication apparatus. In Johnson et al., on the other hand, the antenna device is internal of the telecommunication apparatus. As shown in Figs. 1, 3 and 4, and as described in the specification of the present application, antenna device 10 is an external device attached to an upper rear portion of the portable telecommunication apparatus.

Furthermore, claim 1 has been amended to recite that the flexible dielectric film is contained in a flexible housing (housing 42 in the Figs.). Even if, as contended by the Examiner, the support element in Johnson et al. can be considered to be a flexible support element, the support element in Johnson et al. is not contained in a flexible housing of an external antenna device as now clearly recited in claim 1. As described in the present application, the flexible antenna support element and the flexible housing in which the flexible antenna support element is contained provides an external antenna device that can readily be attached to the upper rear portion of the portable telecommunication apparatus.

Claim 1, accordingly, is not anticipated by Johnson et al., and would not be obvious in view of Johnson et al.; and should be allowable in its present form.

New dependent claim 24 depends from claim 1 and recites that the flexible housing be made of plastic or rubber. Johnson et al. does not disclose or suggest an external antenna device, and certainly does not disclose or suggest an external antenna device having a flexible housing made of plastic or rubber. Claim 24, accordingly, should be allowable in its own right as well as by virtue of its dependency from claim 1.

Independent claim 11 has been amended in a manner generally similar to claim 1 and should also be allowable in its present form. Claim 11 is specifically directed to a portable telecommunication apparatus that includes an external antenna device, and requires that the external antenna device include a flexible dielectric film on which antenna elements are formed and that the flexible dielectric film be contained in a flexible housing. For the reasons discussed above, Johnson et al. neither discloses nor suggests the apparatus of claim 11, and Applicants believe that claim 11 should also be allowable in its present form.

The remaining rejected claims depend from and further restrict either claim 1 or 11 and should also be allowable in their present form.

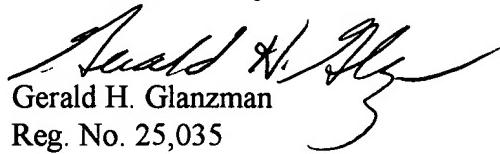
For all the above reasons, claims 1, 2 and 4-24 are believed to be allowable in their present form, and entry of this Amendment as placing the application in condition for allowance is believed to be in order and is respectfully requested. The present Amendment is not believed to raise any new issues that would require any further searching and/or consideration by the Examiner. Dependent claims already in the application and considered by the Examiner recite that the antenna is contained in a plastic or rubber housing, and that the antenna device is attached to an upper rear portion of the portable telecommunication apparatus. The present amendments to independent claims 1 and 11 simply clarifies these aspects of the invention and better emphasizes differences between the present invention and Johnson et al.

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For the convenience of the Examiner, a copy of the amended claims marked-up to show the revisions thereto is attached as Exhibit A, and a clean copy of all the claims currently in the case is attached as Exhibit B.

Respectfully submitted,

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EXHIBIT A
MARKED-UP CLAIM AMENDMENT(S) FOR
RESPONSE TO OFFICE ACTION DATED APRIL 10, 2002

1 1. (Twice Amended) An external antenna device (10) for a portable telecommunication
2 apparatus (1), said external antenna device (10) having a first antenna (21) adapted for
3 telecommunication in at least a first frequency band and a second antenna (22) adapted for short-
4 range supplementary communication in a second frequency band, characterized in that the first and
5 second antennas (21, 22) are formed on a common support element (26, 27), said common support
6 element (26, 27) comprising a flexible dielectric film (26,27) contained in a flexible housing (42).

1 11. (Three times Amended) A portable telecommunication apparatus (1), said portable
2 telecommunication apparatus (1) including an external antenna device (10) having a first antenna (21)
3 adapted for telecommunication in at least a first frequency band, and a second antenna (22) adapted
4 for short-range supplementary communication in a second frequency band, characterized in that the
5 first and second antennas (21, 22) are formed on a common support element (26, 27), said common
6 support element (26, 27) comprising a flexible dielectric film (26, 27) contained in a flexible housing
7 (42).

EXHIBIT B
CLEAN SET OF PENDING CLAIMS

All of the claims are reproduced below for the convenience of the Examiner whether or not an amendment has been made.

1 1. (Twice Amended) An external antenna device (10) for a portable
2 telecommunication apparatus (1), said external antenna device (10) having a first antenna (21)
3 adapted for telecommunication in at least a first frequency band and a second antenna (22)
4 adapted for short-range supplementary communication in a second frequency band, characterized
5 in that the first and second antennas (21, 22) are formed on a common support element (26, 27),
6 said common support element (26, 27) comprising a flexible dielectric film (26, 27) contained in a
7 flexible housing (42).

1 2. An antenna device as in claim 1, where the first and second antennas (21, 22) are
2 formed as printed traces of conductive material on said flexible dielectric film (26, 27).

1 4. An antenna device as in claim 1, where the first antenna (21) comprises a first
2 feeding point (41) and the second antenna (22) comprises a second feeding point (39), the first
3 and second feeding points being electrically isolated from each other.

1 5. An antenna device as in claim 4, where the second antenna (22) comprises a
2 grounding point (40) positioned in proximity with the second feeding point (39).

1 6. An antenna device as in claim 5, where the second antenna (22) is a planar inverted
2 F-type antenna (PIFA).

1 7. An antenna device as in claim 1, where the first antenna (21) is a monopole
2 antenna.

1 8. An antenna device as in claim 6, where the second antenna (22) is adapted for
2 communication in a 2.4 GHz frequency band.

1 9. An antenna device as in claim 7, where the first antenna (21) is a multi-band
2 antenna.

1 10. An antenna device as in claim 9, where the first antenna (21) is adapted for
2 communication in a 900 MHz frequency band and at least one of an 1800 MHz frequency band
3 and a 1900 MHz frequency band.

1 11. (Three Times Amended) A portable telecommunication apparatus (1), said
2 portable telecommunication apparatus (1) including an external antenna device (10) having a first
3 antenna (21) adapted for telecommunication in at least a first frequency band, and a second
4 antenna (22) adapted for short-range supplementary communication in a second frequency band,
5 characterized in that the first and second antennas (21, 22) are formed on a common support
6 element (26, 27), said common support element (26,27) comprising a flexible dielectric film (26,
7 27) contained in a flexible housing (42).

1 12. A portable telecommunication apparatus as in claim 11, further comprising a
2 printed circuit board (33) with radio circuitry (23, 24) mounted thereon, and an antenna
3 connector (28) adapted to provide electric contact between the first and second antennas (21, 22)
4 and said radio circuitry (23, 24).

1 13. A portable telecommunication apparatus as in claim 12, wherein the first antenna
2 (21) comprises a first feeding point (41) and the second antenna (22) comprises a second
3 feeding point (39), the first and second feeding points being electrically isolated from each
4 other; wherein the second antenna (22) comprises a grounding point (40) positioned in
5 proximity with the second feeding point (39);and wherein the antenna connector (28) includes:

6 a first resilient contact pin (31) adapted to engage with the first feeding point (41) of the
7 first antenna (21),
8 a second resilient contact pin (29) adapted to engage with the second feeding point (39) of
9 the second antenna (22), and
10 a third resilient contact pin (30) adapted to engage with the grounding point (40) of the
11 second antenna (22).

1 14. A portable telecommunication apparatus as in claim 13, wherein the first, second
2 and third resilient contact pins (31, 29, 30) are pogo pins.

1 15. A portable telecommunication apparatus as in claim 13, wherein the first, second
2 and third resilient contact pins (31, 29, 30) are spring ledges.

1 16. A portable telecommunication apparatus as in any of claims 11-15, where the
2 antenna device (10) is contained in a plastic or rubber antenna housing (42), which is attached to
3 an upper rear portion of the portable telecommunication apparatus.

1 17. A portable telecommunication apparatus as in claim 11, where the apparatus is a
2 radio telephone (1).

1 18. A portable telecommunication apparatus as in claim 17, where the apparatus is
2 adapted for use in a GSM, UMTS or D-AMPS mobile telecommunications network.

1 19. A portable telecommunication apparatus as in claim 17, wherein said radio
2 telephone (1) comprises a mobile telephone.

3 20. A portable telecommunication apparatus (1), said portable telecommunication
4 apparatus including an antenna device (10) having a first antenna (21) adapted for
5 telecommunication in at least a first frequency band, and a second antenna (22) adapted for short-
6 range supplementary communication in a second frequency band, characterized in that the first
7 and second antennas (21, 22) are formed on a common support element (26, 27);

8 wherein said apparatus further comprises a printed circuit board (33) with radio circuitry
9 (23, 24) mounted thereon, and an antenna connector (28) adapted to provide electric contact
10 between the first and second antennas (21, 22) and said radio circuitry (23, 24), the first antenna
11 (21) comprising a first feeding point (41) and the second antenna (22) comprising a second
12 feeding point (39), the first and second feeding points being electrically isolated from each
13 other, and the second antenna (22) comprising a grounding point (40) positioned in proximity
14 with the second feeding point (39); and

15 wherein the antenna connector (28) includes a first resilient contact pin (31) adapted to
16 engage with the first feeding point (41) of the first antenna (21), a second resilient contact pin
17 (29) adapted to engage with the second feeding point (39) of the second antenna (22), and a third
18 resilient contact pin (30) adapted to engage with the grounding point (40) of the second antenna
19 (22).

1 21. A portable telecommunication apparatus as in claim 20, wherein the first, second
2 and third resilient contact pins (31, 29, 30) are pogo pins.

1 22. A portable telecommunication apparatus as in claim 20, wherein the first, second
2 and third resilient contact pins (31, 29, 30) are spring ledges.

1 23. A portable telecommunication apparatus as in any of claims 20-22, where the
2 antenna device (10) is contained in a plastic or rubber antenna housing (42), which is attached to
3 an upper rear portion of the portable telecommunication apparatus.

4
5 24 (New) The antenna device (10) according to claim 1, wherein the flexible housing
6 (42) is made of rubber or plastic.